**Stat & Data Analysis: Extra Credit- Ch. 3 NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Given a normal distribution with a mean of 25, what is the standard deviation if 18% of the values are above 29?
2. Given a normal distribution with 80% of the values above 125 and 90% of the values above 110, what are the mean and standard deviation?
3. A roadway construction process uses a machine that pours concrete onto the roadway and measures the thickness of the concrete so the roadway will measure up to the required depth in inches. The concrete thickness needs to be consistent across the road, but the machine isn’t perfect and it is costly to operate. Since there’s a safety hazard if the roadway is thinner than the minimum 23 inch thickness, the company sets the machine to average 26 inches for the batches of concrete. They believe the thickness level of the machine’s concrete output can be described by a Normal model with standard deviation 1.75 inches.
4. The company’s lawyers insist that no more than 3% of the output be under the limit (23 inches). What AVERAGE thickness would the operators need to set the machine to achieve this limit?
5. Because of the expense of operating the machine, they cannot afford to reset the average to a higher value- they will keep it at the original of 26 inches. Instead they will try to reduce the standard deviation to achieve the “only 3% under the limit” goal. What standard deviation must they have to achieve this?

1. An owner of gym reports that 5% of the time their gym has fewer than 450 clients, and 40% of the time the gym has more than 1085 clients. What parameters should the owner use for his normal model?